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Using Knowledge Management Processes to Develop and Implement Organizational Training Strategies for Virtual Teams: An Action Learning Approach

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Abstract

This paper develops a conceptual model of a knowledge management system that could be used to develop and implement organizational training strategies for virtual teams. An action research-based case is presented to support and illustrate the contention that action-learning methods can be effectively used to enable and tap into the knowledge generated by virtual teams. Virtual teams are an increasingly common response to changing organizational needs. However, the use of virtual teams has outpaced our understanding of their dynamics and unique characteristics. Practitioners are now offering virtual team training, but few organizations are making the effort to offer in-house training. Moreover, they are missing out on the opportunity to systematically capture the knowledge produced by virtual teams and cycle it back into virtual team training and support systems.

Keywords

Knowledge management, action learning, virtual teams, organizational training.

Introduction

This paper contributes to the general field of knowledge management and virtual teams with the development of a conceptual model that describes how organizations can use knowledge management processes to collect and document virtual team member experiences, team processes and project outcomes and use these to support training strategies for subsequent virtual teams. An action research-based case is presented to support and illustrate the contention that action-learning methods can be effectively used to enable and tap into the knowledge generated by virtual teams. In this section definitions and background related to virtual teams, virtual team training, action learning and relevant aspects of knowledge management are introduced. An abbreviated form of the case study and a brief discussion of three lessons derived from the case and relevant to knowledge management follow this. In the

final section, the conceptual model based on the case and the discussion is introduced and implications for organizations, knowledge management practices and research are raised.

Virtual teams are a relatively recent phenomenon and Townsend, De Marie and Hendrickson (1998:18) define them as "groups of geographically and organizationally dispersed co-workers that are assembled using a combination of telecommunications and information technologies to accomplish an organizational task". Virtual teams represent a new way of doing things in organizations. They open up organizational opportunities not previously available, but they could potentially fundamentally change the organization. Yan and Louis (1999) point out how organizational functions are migrating to the work unit or team level under current organizational realities. Global virtual teams are often assigned the most important tasks in an organization, such as multi-national product launches, negotiating mergers and acquisitions among global companies, and managing strategic alliances (Maznevski & Chudoba, 2000). However, the use of virtual teams has outpaced our understanding of their dynamics and unique characteristics (Cramton & Webber, 2000).

Like virtual teams, virtual team training is still relatively new and untested. Although researchers are recommending virtual team training (Pare & Dube, 2001; Townsend et al., 2002), little empirical research has been published in this area, and it is usually research on student samples (Tullar & Kaiser, 2000; Warkentin, & Beranek, 1999). Most of the published material available is practitioner-based, mostly in popular books (Duarte & Tennant-Snyder, 1999; O'Hara-Devereaux & Johanson (1994), practitioner literature or on the Internet. A quick search on the Internet also reveals numerous training companies and consultancies offering virtual team training, much of it on-line.

Because virtual teams are new and their characteristics not yet understood, it is problematic developing effective training programs for them, not only in training content but also delivery in what will often be a distributed environment. There is a need for research into how virtual team members and leaders learn and what they learn, and a need for conceptual frameworks to map how this knowledge can be cycled back through the organization to other virtual team members. Until now, no general framework has been produced to guide learning in virtual team.

One possible method for capturing virtual team learning is action learning. Action learning is closely linked to action research (Lau, 1999) and is now accepted as an important element of knowledge management efforts in all organizations. Brenneman, Keys and Fulmer (1998) state that in the Shell Oil Company the emphasis and impact of action learning has become a benchmark standard for other organizations aspiring for excellence in learning. Action learning is a practical group learning and problem-solving process where the emphasis is on self-development and learning by doing. Action learning has been described as the process by which groups of people work on real organizational issues and come up with practical solutions that may require changes to be made in the organization (Revans, 1982).

In a study of how facilitators of conventional meetings become facilitators of face-to-face electronic meetings, Yoong and Gallupe (2001) adopted the 'experiential' version of action learning (Marsick & O'Neil, 1999). They argued that learning to be a facilitator of electronic meetings requires more than just 'reading', 'talking' and 'thinking' about it. It also requires the actual experience of 'doing' it. The same argument holds for virtual team leaders and members as they work in the new and dynamic virtual team environment where traditional team skills may not be adequate.

The growing recognition of the importance of knowledge management in organizations forms a substantial literature (Fowler 2000, Jarvenpaa & Staples, 2000; Holstapple & Joshi 2000; Davenport & Prusak 1998; Nonaka 1994; Winter 1987; Holsapple & Whinston 1987). Knowledge management refers to the identification of knowledge needs and assets, knowledge problems and opportunities and to the design, development and

implementation of strategies and solutions in organizational management environments. Some of that literature has been concerned with the nature of collaboration and the applications of knowledge management to team environments (Lyons, 2000; Grant 1996).

Furthermore, knowledge management processes can be used to 'capture' the knowledge and experiences generated by teams. It has been suggested that the efforts of teams now form the distinctive core competences of companies and that the mechanisms of innovation must also be sought at the team level (Probst et al, 2000). Probst (2000) pointed out how case writing was used by Siemens as a knowledge management and organizational learning tool with particular effectiveness in teams. It is reasonable to assume that virtual teams generate knowledge that can also be captured with knowledge management processes.

What is of interest in this paper is how the knowledge management system is supported, in fact, promoted by team leaders in a virtual team environment and the needs of virtual team training. This is especially important as knowledge management rallies around an organizational capability to create and disseminate knowledge, dependent on the willingness of individuals to share that information with others in their virtual team (Jarvenpaa & Staples 2000; Davenport & Prusak 1998; Nonaka & Takeuchi 1995). Knowledge management systems in virtual team environments become the source of virtual team knowledge generation and capture. Subsequent training programs in knowledge-facilitated virtual teams promote knowledge management and enable review. It is suggested that virtual team facilitators can be the knowledge management-virtual team-training link. They, the facilitators become the intermediary in that process. 'Facilitator' is initially seen as the team leader throughout the paper. Facilitation occurs initially in the role of initiation of change and learning. Later in the process the facilitator plays a different role. They can be the 'new' knowledge facilitators who may indeed be associated with a team or project from inception but are more likely to be used at the end of the team process as a skilled debriefer.

Case Study – New Zealand-Based Virtual Team Leaders

The case presented here was developed from a larger three-year study of virtual teams. Various findings from this case, including the use of electronic communication channels and boundary crossing, have been presented in other papers (Pauleen & Yoong, 2001a; citation Pauleen & Yoong, 2001b). The use of this case in this paper is to highlight how action learning methodology can play an important part in a knowledge management program. Specifically it demonstrates the kinds of insights that can emerge when employees are given the time to reflect on their work experiences. These insights are potentially very valuable to organizations and their knowledge management programs.

This case focuses on the experiences of a learning set of professional business people (Table 1) in New Zealand as they planned for and led their virtual teams within the larger context of their individual organizations and the rapidly evolving ICT (Information and Communication Technology) environment. The action learning research methodology, central to the knowledge management-training to be introduced in this paper, will be explained briefly. The conceptual model, *Building Virtual Relationships*, which developed out of this study, is also briefly explained.

Participant/ Positions	Organization	Project	Team	Boundaries
DW, Managing Director	NZ (New Zealand) advertising company - part of an international partnership	Initiation of a project within the international partnership	Global, CEO membership, volunteer: between 4 and 8 members	Inter-organizational, cultural, language, time, distance
BC, Senior Policy Analyst	NZ Government Department	Ongoing treaty negotiation between government and indigenous group	Representatives from government departments and claimant group: up to 20 core and extended members plus stakeholders	Inter-organizational, departmental, functional, cultural, language, distance
SC, Independent contractor	NZ educational consulting company	Construction of web page, followed by management of web- based assessment center	Local, Wellington (NZ) based, independent contractors: fluid membership 3 – 5 members	Organizational, functional, distance
RB, General Manager	NZ software and business development consulting company	Initiation of virtual communication channels with branch office	Members in NZ and Australia: 5 members	Intra-organizational, cultural, time, distance
RW, Managing Director	NZ-based political consultancy operating worldwide as a virtual organization	Management of a political campaign in California	Members in NZ and California: 3-4 members	Inter-organizational, functional, cultural, time, distance
AR, Project Manager	NZ office of international consulting company	Research and writing a strategic plan for Southeast Asian government ministry	Members in Southeast Asia. Australia and New Zealand: 12 core members plus stakeholders	Inter & intra-- organizational, functional, cultural, language, time, distance
JJ, Project Analyst	Austral Asian trading company	Opening and organising a branch office in Vietnam	Members in Vietnam, NZ and Australia: 3-4 core members	Intra-organizational, cultural, language, time, distance

Table 1: Summary of the study's participants, organisations, project and teams

Research Methodology

An interpretive qualitative methodology, grounded action learning, was developed for this study. With virtual teams being a new form of highly dynamic and ambiguous collaborative interaction, qualitative methodology is more likely to be effective in answering the question of how virtual team leaders implement and manage virtual teams than quantitative methods. Qualitative methodology allowed this initial research to focus on the emerging issues and challenges inherent in virtual team settings (Kayworth, & Leidner, 2000).

To attract professional people to participate in this study and to ensure they had experiences to talk about, a specially designed action learning-based virtual team training program was developed that provided participants with the knowledge and skills to both implement and lead a virtual team as well as be able to talk about them. These training programs functioned as learning spaces for the participants and the principal researcher, allowing for structured, yet flexible training, semi-structured interviewing and free-wheeling discussions. No particular hypothesis was being tested in this research design, but the research question was directed at how virtual team leaders implement and manage virtual teams. The grounded theory approach was expected to produce a set of constructs and a description of

their relationships relevant to the experiences of the participants. These constructs in themselves reflect practice in the virtual teams and allowed the researchers to formulate theory.

Virtual team action learning training program

Action learning was described in some detail earlier. In this case, action learning provides a useful approach for those who are in the process of unravelling the nature and complexity of virtual team facilitation (Yoong, 1996). The action learning training program developed for this case provided an appropriate framework for studying virtual teams and virtual team leadership. The following comment by one of this study's participants on why she wanted to participate in this study illustrate the relevance of the action learning paradigm.

I have significant interest/experience with virtual teams from different ethnic and cultural backgrounds - but I am no expert - there is still an awful lot for me to learn. Mostly my virtual team experiences have been great - but there have been one or two pitfalls along the way. I have done much of my work by "the seat of my pants". I would like some kind of structure in terms of learning to set up an organized system, the sorts of things that make a good virtual team, the sorts of things that make things work well, the things that can be done differently. I am particularly impressed with all the other bios I have read from the other participants. I look forward to both learning and contributing.

As this participant's comment indicates, action learning meets the requirement that this training program be tailored to a group of experienced organizational people who bring their own professional expertise and who, by researching their own practice, would be able to learn to improve their own team leadership skills in a virtual team environment.

The action learning training program (AL program) used in this study was designed based on the researcher's experiences with virtual teams and a pilot project that ran for over one year. The pilot project involved one virtual team leader who wanted to initiate a virtual team within a global partnership of companies. The pilot participant and the researcher worked together, more or less, as co-researchers in the manner of participative action research (Whyte, 1991). At the conclusion of the pilot program, a training program was developed followed by a call for volunteers.

Each of the two subsequent AL programs was ten weeks long. The content of the program covered virtual team issues and processes of concern to a virtual team leader. The content was similar for the two training programs. During the AL programs, each participant planned for, evaluated the use of, and/or actually initiated and led a virtual team within their own organizational context. The three participants and the trainer/researcher in each program met every two weeks for two hours.

Data was collected during semi-structured face-to-face interviews with each participant, which were held at each session. Phone interviews were conducted with each participant between training sessions. Informal discussions between participants were also recorded during the training sessions. A follow-up review and evaluation session was held for all the leaders approximately one year after the AL programs were completed in which leaders were given a final interview. For a more detailed description of the training sessions, data collection, and limitations of the study, see Pauleen & Yoong, (2001a; 2001b).

Grounded theory approach to data analysis

Traditional grounded theory is a methodology for developing theory that is grounded in data systematically gathered and analyzed in which theory emerges during actual research, doing so through the continuous interplay between analysis and data collection (Strauss & Corbin, 1990). Central features of this analytic approach include the general method of (constant) comparative analysis, theoretical sampling, theoretical sensitivity and theoretical saturation (Glaser & Strauss, 1967). Strauss and Corbin later introduced a paradigmatic framework to assist in structuring data in meaningful ways (Strauss & Corbin, 1990).

In all over 250 pages of interviews and discussions were transcribed from the pilot project and the two AL programs. Open coding techniques, a process of labelling the events and ideas represented in the data (Annells, 1997) were used. This was done throughout the pilot project and the two AL programs. Using NVIVO, a computer software program, the transcript was perused and one or more conceptual codes (called free nodes in NVIVO) were assigned to each line, sentence or paragraph, most often in terms of properties and dimensions. All transcripts from the pilot project and each of the two AL programs were similarly coded.

As data analysis continued, particularly during and after the second AL program, using axial coding and the constant comparative method, codes were merged, changed and occasionally eliminated. Based on similarities or differences, codes were grouped them into clusters of conceptual codes, called conceptual categories, representing a higher level of abstraction. Nine conceptual categories were eventually developed. Extensive writing and modelling around these categories were done. By analyzing the data from a variety of perspectives - transcripts, coding, case studies, and integrative memos - it became apparent that newer and higher levels of abstractions and relationships were forming.

Eventually, it became clear that relationship building was the key basic social process (Glaser, 1978) that team leaders were concerned with as they initiated their virtual team. At this point, coding was delimited to only those variables that related to the core category in sufficiently significant ways (Glaser, 1978). The core category, along with the other significant theoretical categories and the relationships between them eventually became the leader-facilitated relationship building mode, which is discussed below.

Using the action learning approach, the virtual team leaders in this study were able to gain valuable experience in the implementation and management of virtual teams while the researcher was able to develop a pertinent model of relationship building between virtual team leaders and members. The model was member-checked for relevance by most of the research participants in a special session at the conclusion of the data analysis. This model is discussed below. Using similar approaches it is reasonable to expect that organizations could develop valuable knowledge about virtual team processes that can be incorporated into the organizational knowledge management structure and used to support virtual team training, a point, which will be elaborated on in the Conclusion section.

Case Findings - Steps in Building Virtual Relationships

The single most important finding to emerge in this study was the need for team leaders to first build personal relationships with their team members before proceeding to the team task. Building relationships with team members was the key basic social process (Glaser, 1978) identified in this study. A basic social process can be understood as a theoretical reflection and summarization of the patterned and systematic flow of social life. This study, believed to be the first to document how virtual team leaders build relationships

with team members, and the supporting literature references clearly demonstrate that the benefits of building relationships with team members are manifold and that they manifest at the personal, team and organizational level and are both immediate and long-term.

Building Virtual Relationships (Figure 1) is the three-step process that virtual team leaders go through when building relationships. It is the main outcome of this exploratory study and one that has important implications for practitioners, trainers and organizations. This model serves to bridge the gap that currently exists between virtual team research and practice. Although derived in a local setting from a limited number of team leaders, the model provides practitioners with a cognitive model of how relationship building with virtual team members can be approached - through the three steps of *Assessing Conditions*, *Choosing Levels of Relationship*, and *Creating Strategies*. It also provides organizations with an important piece of the virtual team training puzzle.

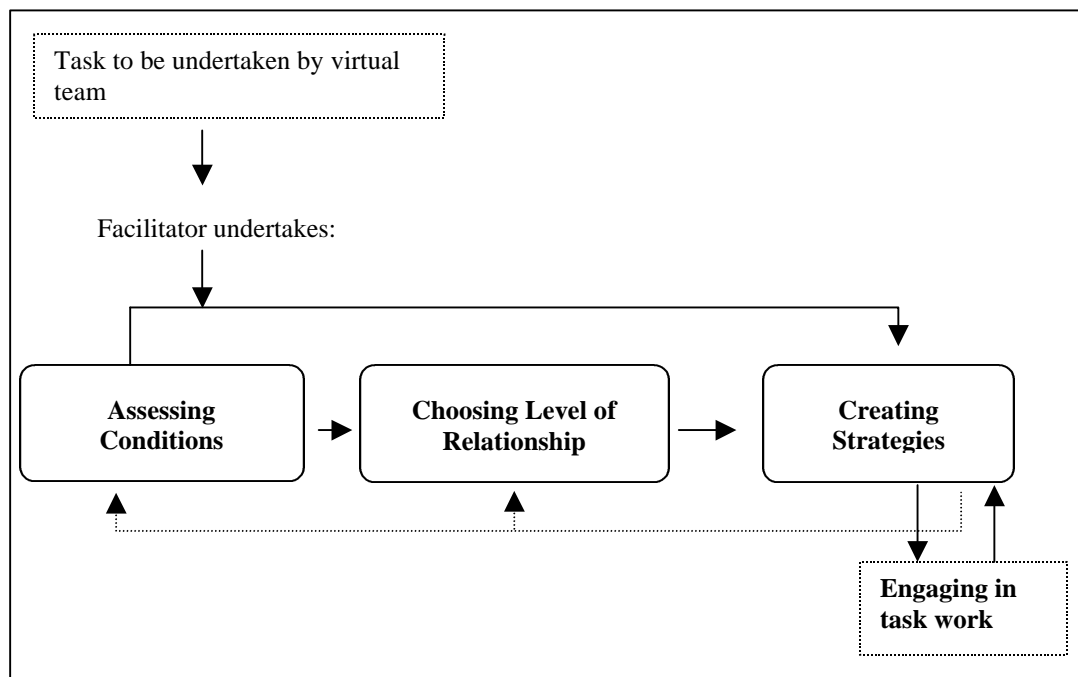


Figure 1: The Three Steps in Facilitating Virtual Relationships (in organizational context)

Due to the limitation in length of a conference paper, it is not possible to fully explain the steps of this model. This information can be found in Pauleen (2000). However, the implications of this model and some of the lessons that can be derived from it are discussed in the next section. These are important because they show the value of the knowledge that can be derived from a virtual team using a systematic attempt at knowledge generation and capture, in this case, grounded action learning.

Discussion

In this section three lessons derived from the case and relevant to knowledge management will be discussed: the importance of the findings to virtual teams and organizations; the importance of action learning in generating knowledge in dynamic situations; and the need to disseminate this knowledge to subsequent virtual teams. This will be followed in the Conclusion and Implications section with a discussion of the importance of

virtual team training and the introduction of an organizational knowledge management-training model. Finally the implications for practitioners will be briefly discussed.

The model, *Building Virtual Relationships*, suggests a number of important outcomes for leaders of virtual teams, as well as organizational support issues. Two outcomes related to Step 3 of the model are illustrative. The first confirms that the selection and use of communication channels in virtual teams for the purpose of relationship building is likely to be a critical factor (Orlikowski, Yates, Okamura and Fujimoto, 1995) and that teams that adopt multiple computer-mediated communication systems (CMCS) to accommodate a variety of communication are more likely to be satisfied with their ability to communicate in their team (Kayworth & Leidner, 2000). The second is that although ICT has enabled the creation and spread of virtual teams, they may not be able to replace face-to-face interaction, particularly in early relationship-building stages. Thus the strategic selection and use of communication channels play a critical role in the success of virtual teams and the transmission of knowledge. These kinds of 'knowledge' outcomes generated in an action learning environment can inform organizational virtual team training programs.

Using action learning frameworks, organizations will want to adopt the role of researcher to understand and capture the ongoing contextualization performed by virtual team leaders and team members working in the new and uncharted waters of the virtual environment. Action learning frameworks that capture individual and team learning can help in the understanding of a number of important team and organizational questions. Examples of the kinds of knowledge that may be sought through action learning include: how do virtual teams (learn to) establish team norms and protocols and which ones are effective; how are functional, organizational and cultural boundaries effectively crossed (Pauleen & Yoong, 2001b); how are decisions made to use ICT and how are these technologies being effectively used (Pauleen & Yoong, 2001a)?

Best practices about virtual team processes learned by practitioners in virtual team environments would certainly be of benefit to subsequent virtual teams. Organizational training programs are a likely channel for delivering best practice training. Virtual team processes and dynamics are very different from those of co-located teams and require special team leader and team member skills, particularly for first time members, and according to Coleman (1997) focusing on people issues will dramatically increase the possibility of virtual team success. Without effective self-leadership skills, individuals and teams in virtual environments cannot begin to realize their full potential (Oakley, 1998). As the AL program presented in the case in this paper demonstrated, training can help virtual team leaders gain the skills, knowledge and awareness needed to implement and manage virtual teams. Other studies have also found that virtual communication training and training on virtual team processes and outcomes hold promise as a way for team leaders and members to gain the skills, knowledge and awareness needed to lead and participate in virtual teams (Tullar & Kaiser, 2000; Warkentin & Beranek, 1999). Both the research and practitioner literature suggest that training in any number of areas will be useful, including training in virtual team communication and virtual processes, ICT selection and use, cross-cultural communication and relationship building, and general boundary crossing and networking skills. Indeed, almost any training that increases a team member's flexibility and ability to handle ambiguity will be valuable.

Both the specific action learning outcomes relevant to virtual teams as discussed above as well as the use of the action learning method have implications for knowledge management and training in virtual team environments. As explicit knowledge becomes part of the iterative process and thus shared, the accumulation of knowledge is further enhanced, as the knowledge management process is a facilitated one providing direction and enabling communication.

Knowledge creation and sharing of virtual team processes and outcomes could be of significant benefit to organizations that have the technology and policies in place to retain and distribute individual, team and organizational knowledge. Gundry and Metes (1996) stated that organizations need to manage the experiences and knowledge of virtual teams, a sentiment echoed by Kimball (1997:1) who said, "organizations need to harvest the learning and experience of members of the organization so it's available to the whole organization". According to Townsend et al., (2002), no real virtual work benchmark systems exist to serve as foundations for an individual organization's response. They argue that virtual work is context-specific and what works well for one organization may not be appropriate for another company. This makes learning in virtual teams and the knowledge generated a potentially valuable resource for team members and leaders if effectively incorporated into organizational training, coaching and mentoring programs. Abell (2000:34) states that organizational capability in KM is created by the staff's ability to learn and to build knowledge from learning; by processes that enable the staff's skills and evolving knowledge to be applied and share; and by an infrastructure (technology and physical) that supports knowledge sharing building, flow and sharing. Critical to accomplishing this, virtual team task/project timelines will need to include time for team reflection and evaluation of team member and leader experiences, something that is often lacking in organizations (Katzy, Evaristo and Zigers, 2000) and also provide specialists with the skills necessary to help generate and document worthwhile knowledge.

At this point, we would like to introduce a knowledge management-training model (Figure 2) that organizations can use to conceptualize knowledge management processes that can answer three critical questions: first, what kind of training content will be most relevant to virtual teams in any given organization; second, how does an organization enable and gather this content; and finally, how does the organization effectively disseminate this content to those who need it? We believe this model can be used to conceptualise the capture of virtual team processes and task knowledge and incorporate them into a comprehensive virtual team training program. As we will point out, action learning methods are a key feature of this model.

In the inner circle of this knowledge management-training model traditional, training procedures (needs assessment, training design, training, reflection and evaluation) are incorporated into the virtual team lifecycle. Action learning methods can be a feature of this whole process, but are absolutely crucial in Step 5 *Reflection and Evaluation*. It is in Step 5 where a trained facilitator can 'tease' out the team leader's and members' accumulated knowledge and experiences (Probst, 2000). This is the jumping off point for an organizational knowledge management system built to capture knowledge and processes generated by virtual teams and to then use that knowledge to support subsequent virtual teams.

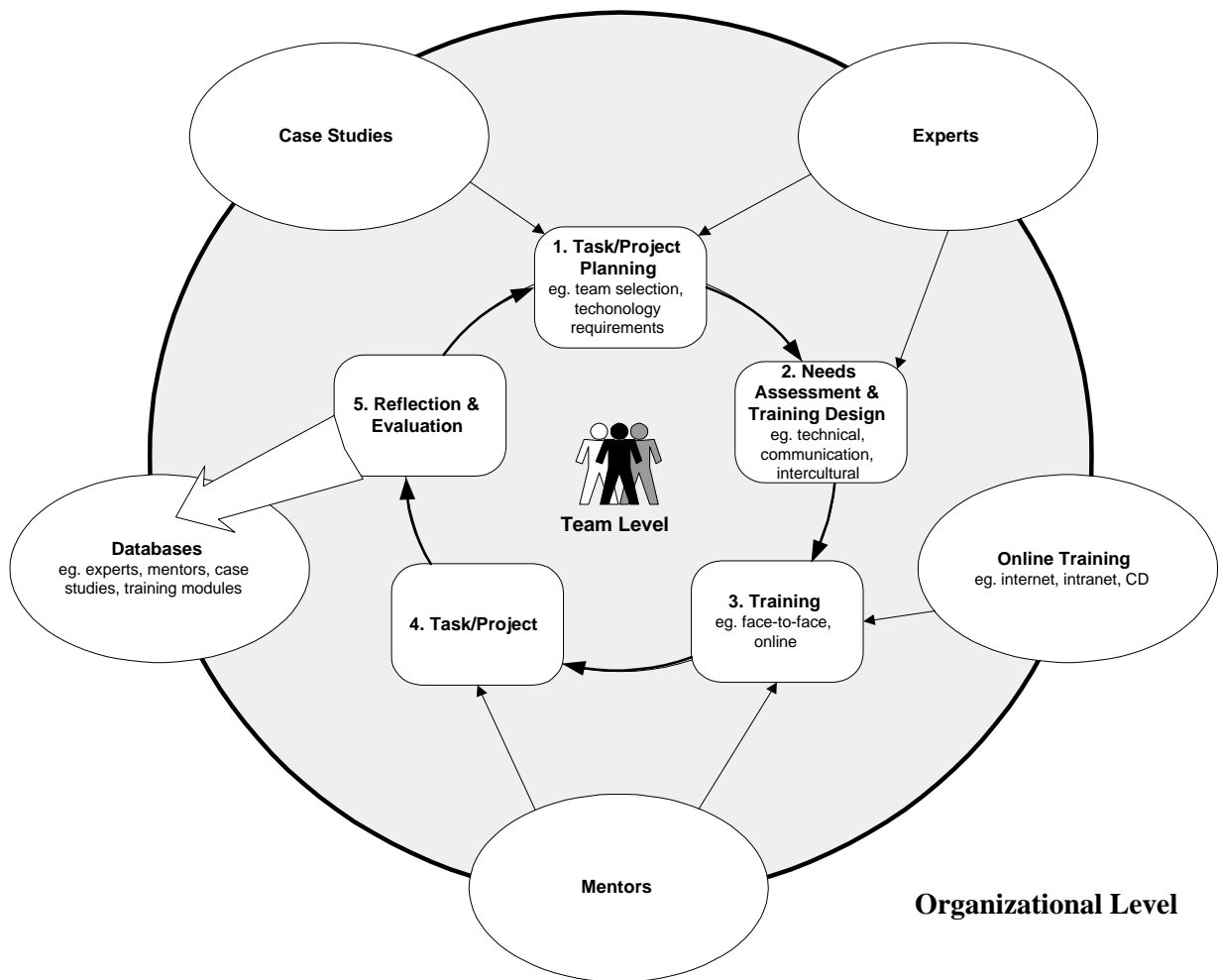


Figure 2: Knowledge Management-Training Model (Pauleen, 2001)

The reflection and evaluation process allows virtual teams to make explicit all of their experiences and insights, many of which throughout the life of the virtual team would have remained tacit or personal reflections (Nonaka & Takeuchi, 1995). These experiences and insights can then be documented as case studies or critical incidences by case facilitators and entered into an organizational database (the outer circle). They may also be put into narrative forms as stories, or even video or audio taped (Lyons, 2000). The names of virtual team leaders and team members may also be entered into databases or organizational resource directories to be accessed later as mentors or experts. When new virtual teams are implemented within the organization, these resources can be made available in a systematic way through organised training programs and/or freely accessed by team leaders and members on an as-needed bases at various points in the project cycle.

Obviously, a key to success in this model is an organization's willingness to factor in 'reflection and evaluation' as a critical part of the virtual team lifecycle and to provide trained case facilitators, who should be trained communicators specializing in the dissemination of best practices. In the research case that underpins these recommendations it becomes apparent that facilitated team training enables reflection and learning to be formalized and patterned in ways that create knowledge management practice as an integral part of the team outcomes. In a formal performance measurement sense they can become acceptable KPIs (Knowledge Performance Indicators) when knowledge management becomes integral to business performance, a scenario that is becoming more evident in business.

This evidence supports the earlier reported literature that incorporating KM into the virtual teams process is important for organizations to gain the flexibility to remain competitive (Duarte-Tennant-Snyder, 1999; Moshowitz, 1997; Lipnack & Stamps, 1997) and to be significant, if not central to 21st century organizations (Grenier & Metes, 1995). This research also supports the role of action learning as a method that supports the creation of knowledge and which could be a key component of a knowledge management system within the team development process. Knowledge management developed out of the action learning process and depending on the role of the team in the organization will support organization learning and facilitate the advantages of virtual team development as proposed by Robey, Khoo and Poers (2000). It further supports the notion that knowledge plays a central role in framing the processes of communication and decision-making (Holsapple & Joshi, 2000; Lyons, 2000; Grant, 1996). What is unclear from this research is the role of tacit and implicit knowledge in the knowledge management process. The social setting for the construction of learning and knowledge management in this case is important but those elements of culture and cultural behaviour are apparently ignored as the role of leader and facilitator supplant the typical negotiated scenarios that would replace facilitated team development in a face-to-face environment. Further research will be needed to understand why this apparently unexpected process happened. It appears to be related to the role and importance of training, which is integral in the teams studied in this research.

Conclusion

In this paper we have suggested that training forms an important strategy in the success of virtual team interaction. The team leaders in this study believed relationship building was a prerequisite to a successful virtual team. Their richly described experiences suggest a model for relationship building that other virtual team leaders should be able to benefit from. The supporting literature also suggests that practitioners need to pay special attention to relationship building when planning, designing and implementing virtual teams. Given the numerous interpersonal and team benefits that may be accrued through intentional and appropriate relationship building, it is clearly in the interests of virtual team leaders and team members to actively engage in relationship-building strategies as part of a virtual team lifecycle. Organizations as a whole would also seem to profit by supporting relationship building in virtual teams. Benefits include better performing teams as well as possible increased organizational trust amongst employees.

The Knowledge Management/Training model proposed in this paper provides a way for organizations to identify the importance of relationship building as a virtual team process as identified by the virtual team participants and 'capture' or develop it as a cognitive model that can be used in organizational knowledge initiatives such as training. The model represents the typical iterative nature of the training process within the iterative action learning training process in the virtual team project cycle. Such iterations are themselves part of the episodic nature of knowledge management (Holsapple & Joshi, 2000). This paper

extends that model and suggests a richer understanding of the role of training strategies in virtual teams and supports the role of training in virtual teams as a key component of knowledge management and its application in organizational development. As training becomes more significant in virtual teams as new technologies emerge and have to be adopted, the iterative nature of change in the knowledge management process becomes more significant for organizations. Training becomes an integral parameter in the knowledge management process and suggests to businesses that change is neither simplistic nor necessarily episodic alone. The process rather is complex and iterative as change emerges from one episode to another. This necessitates business organizations to deal with the virtual team context in ways that are different from conventional team management.

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